



The Commonwealth of Massachusetts

Department of Public Safety

DIVISION OF INSPECTION ENGINEER / FIREMAN LICENSE

Cashier's
Transaction Number

Application for License as a 2nd Fireman, 1st Fireman, 3rd Engineer, 2nd Engineer, 1st Engineer, special to operate, or special to be in charge engineer in Accordance with Massachusetts General Law Chapter 146 section 50A and 57.

Application must be filled out in **ink** and accompanied by the non refundable processing fee.

Mail Application to: Department of Public Safety, 1 Ashburton Place, room 1301, Boston, MA 02108-1618

Attn: Cashier's Office

1. Choose the license for which you are seeking to obtain:

- | | |
|--|--|
| <input type="checkbox"/> 1 st Class Engineer (\$60 non-refundable processing fee) | <input type="checkbox"/> 1 st Class Fireman (\$50 non-refundable processing fee) |
| <input type="checkbox"/> 2 nd Class Engineer (\$50 non-refundable processing fee) | <input type="checkbox"/> 2 nd Class Fireman (\$50 non-refundable processing fee) |
| <input type="checkbox"/> 3 rd Class Engineer (\$50 non-refundable processing fee) | <input type="checkbox"/> Special to operate (\$50 non-refundable processing fee) |
| | <input type="checkbox"/> Special to be in charge (\$50 non-refundable processing fee)
(see attached *SPECIAL LICENSE for additional required information) |

2. ☐ WRITTEN EXAM ☐ 2nd ORAL EXAM ☐ 3rd ORAL EXAM

3. Full Name: _____ Social Security Number: _____
(first name) (middle Initial) (last name)

4. Home Address: _____
(number) (Street) (City) (State) (Zip Code)

5. Mailing Address: _____
(P.O. Box or Street) (City) (State) (Zip Code)

6. Date of Birth: _____ Place of Birth: _____ Phone #: _____
(month / day / year) (city / town, State) ()

7. I am now employed by: _____ at _____, Mass. as _____
(Name of employer) (town / city) (state full title/occupation)

8. Do you hold a Massachusetts Fireman's or Engineer's license? ☐ YES ☐ NO
If so, list license number: _____
License number License Grade Date granted

9. My last examination for a Massachusetts license as an engineer or fireman was on: _____
(month / day / year)

APPLICANT MUST SIGN THEIR FULL NAME HERE, IN THE PRESENCE OF THE INSPECTOR WHO ADMINISTERS THE OATH

Signature of Applicant

Date

COMMONWEALTH OF MASSACHUSETTS, _____ County

The above applicant personally appeared and was examined by me and made oath that the statements contained in this application and subscribed by them are true, this _____ day of _____, in the year 20 _____

Before me, _____ Dist. Eng. Inspector

Before me, _____ Dist. Eng. Inspector

Before me, _____ Dist. Eng. Inspector

RESULTS: _____

EXPIRATION DATE: _____

LICENSE CODE: _____

U.S. CITIZENSHIP

I am a U.S. citizen by birth: _____ or by naturalization on: _____ OR
(yes or no) (Date)

I have filed a declaration of my intention to become a U.S. citizen on: _____
(Month, day, year)

Write name in full. Do not use initials

TAX STATEMENT

Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A, I certify under the penalties of perjury that to my best knowledge and belief I have filed all State Tax Returns and paid all State Taxes required under Law.

Signature of Applicant

Date

WORK EXPERIENCE: (most recent first)

1. I have been employed as a engineer/fireman by _____ at _____
(name of employer in full) (city or town)
from _____ to _____ and held and used a _____ license during that time.
(month / year) (month / year) (class of license)

2. I have been employed as a engineer/fireman by _____ at _____
(name of employer in full) (city or town)
from _____ to _____ and held and used a _____ license during that time.
(month / year) (month / year) (class of license)

3. I have been employed as a engineer/fireman by _____ at _____
(name of employer in full) (city or town)
from _____ to _____ and held and used a _____ license during that time.
(month / year) (month / year) (class of license)

My total experience using the current Massachusetts license I hold is _____ (in months and years).

ENDORSEE:

It is mandatory that this application be endorsed (except applications for second class fireman and special licenses) by an engineer or fireman holding a Massachusetts license of the same grade as that applied for, or of a higher grade.

I hereby certify that _____ is well known to me and that to my knowledge
(insert name of applicant)
they have the necessary operating time required by law, and that they are a person of good character and ability.

Name: _____ Address: _____

Grade of License: _____ Current License Number: _____

Signed: _____

Write name in full

My total experience on Steam Boilers is as follows:

Length of service		Horsepower of Boilers	State if in charge or operating	Class of license held	Employer / Location / Phone
Years	Months				
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:

My total experience on Steam Engines is as follows:





Length of service		Type of Engines	State if in charge or operating	Class of license held	Employer / Location
Years	Months				
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:
					Phone: Name of Chief Engineer:

Use this space to state any additional work you may have done in connection with steam boilers or engines that would tend to fit you for the license for which you are applying, other than being in charge, operating, or working as a assistant to an engineer or fireman.

PREQUISITES FOR FIREMAN


ALL of the following items **MUST BE SUBMITTED WITH THE APPLICATION** in order for your application to be processed properly. Failure to submit all required information and proper fee will result in ineligibility to take the exam and forfeiture / loss of processing fee.

ALL APPLICATIONS MUST INCLUDE THE FOLLOWING:


-  Completed Application with proper mailing AND home address, social security number.
-  Attached 1" x 1.25" photo
-  Documentation of work experience in hours
-  Non-refundable application processing fee as listed on page 1 of the application.

Additional Prerequisites:


2nd Fireman

-  Must be at least eighteen years of age.


1st Fireman


-  Must provide documentation that you have been employed in a boiler or steam power plant as a steam engineer, fireman, control room operator, watertender auxiliary operator or engineer's assistant for not less than one year,

OR


-  Must provide documentation that you have held and used a second class fireman's license for **not less than six months**.

3rd Engineer


-  Must be a citizen or furnish proof of having filed a declaration of their intention to become a citizen of the United States.

-  Must provide documentation that you have been employed in a boiler or steam power plant as a steam engineer, fireman, control room operator, watertender auxiliary operator or engineer's assistant for not less than **one and one half years**


OR

-  Must provide documentation that you have held and used an equivalent license in the United States merchant marine for **one year**,

OR

-  Must provide documentation that you have held and used an equivalent license from another state for **one year**.,





OR

-  Must provide documentation that you have held and used a first class fireman's license for **not less than one year**.








PREQUISITES FOR ENGINEERS

ALL of the following items **MUST BE SUBMITTED WITH THE APPLICATION** in order for your application to be processed properly. Failure to submit all required information and proper fee will result in ineligibility to take the exam and forfeiture / loss of processing fee.






ALL APPLICATIONS MUST INCLUDE THE FOLLOWING:

-  Completed Application with proper mailing AND home address, social security number.
-  Attached 1" x 1.25" photo
-  Documentation of work experience in hours
-  Non-refundable application processing fee as listed on page 1 of the application.

2nd Engineer

-  Must be a citizen or furnish proof of having filed a declaration of their intention to become a citizen of the United States.
-  Must provide documentation that you have been have been employed as an engineer in charge of or operating a steam plant or plants having at least one engine or turbine of not less than fifty horsepower for **not less than two years**
- OR
-  Must provide documentation that you have held and used a third class engineer's license either as an engineer, assistant engineer, control room operator or a fireman for **not less than one year**,
- OR
-  Must provide documentation that you held and used an equivalent license in the United States merchant marine for **two years**,
- OR
-  Must provide documentation that you have held and used an equivalent license from another state for **two years**.
- OR
-  Must provide documentation that you have held and used a special license to operate a first class plant for not less than two years, except any person who is a United States citizen and served three years as an apprentice to the machinist or boiler making trade in stationary, marine or locomotive engine or boiler works and who has been employed one year in connection with the operation of a steam plant,
- OR
-  Must provide documentation that you have a bachelor of science degree in engineering from any duly recognized school of engineering, who has been employed for one year in connection with the operation of a steam plant.

1st Engineer

-  Must be a citizen or furnish proof of having filed a declaration of their intention to become a citizen of the United States.
-  Must provide documentation that you have been employed for not less than **three years** as an engineer in charge of a steam plants or plants having at least one engine or turbine of over one hundred fifty horse power,
- OR
-  Must provide documentation that you have held and used a second class engineer's license in a second class plant for not less than one and one half years, or in a first class plant as assistant engineer for one and one half years,
- OR
-  Must provide documentation that you have held and used an equivalent license in the United States merchant marine for **three years**,
- OR
-  Must provide documentation that you have held and used an equivalent license from another state for **three years**.

SPECIAL LICENSE TO OPERATE OR TO HAVE CHARGE OF BOILERS

Please provide the required information in the template and send along with your application for a special license.

Please examine Mr. / Ms. _____

for a Special License to **Have Charge of and Operate** or for a **Special License to Operate Boilers** at our steam plant.

Company Name and
Address _____

Consisting of the following types of boilers:

Please answer questions 1-5 about your boiler(s) so we may complete your application

1. Boiler Manufacturer's name and type of boiler _____

2. National Board Number of the boiler _____
3. Year Built of the boiler _____
4. Safety valve set pressure in P.S.I. _____
5. Boiler Horsepower _____

Signature of the Owner or User of the boiler
plant _____

Please attach this form with your application for a Special License.

SPECIAL LICENSES: A person who desires to be examined for a special license shall be examined as to his knowledge of the boilers or engines, or both; whatever is contained in the particular steam plant for which he desires licenses; also pumps and inspirators and all appliances pertaining to said steam plant. The applicant should have the operating knowledge of the particular steam plant that a person with a second class fireman's license would know.

SECOND CLASS FIREMAN

Types, purpose, operation, of the following: Fire Tube boilers, water tube boilers, package boilers, forced-flow steam generators, steam drum internals, water column, gauge glass, try cocks, safety valves, check valves, relief valves, valves, gauges, soot blowers, dampers, superheaters, economizers and air preheaters. Fundamentals of heat transfer and circulation of water in various boiler types; including the properties of steam. Arrangement of blowoff piping in various boilers. Blowoff valve sequencing in various boilers. Purpose for boiler blow down. Purpose of steam traps. Proper operation of valves for opening and closing. Proper procedure for establishing boiler water level, light-off and going on line with other boilers on a header system.

Proper procedure for boiler out of service operation such as: shutdown, draining, isolation, cleaning. The preparation of a boiler for inspection. Proper procedure for startup of boiler auxiliaries such as: motor-driven boiler feed pumps, reciprocating steam pumps, draft fans, etc. and their normal operation. Purpose and operation of safety valves. Procedure for removing and installing manhole and handhole plates. On line operation for abnormal conditions such as: oil in boiler, low water, high water, water carryover, leaks, etc. Types and operation of oil and gas burners as used in H.P. boilers. A basic knowledge of combustion flame safety equipment.

Understanding of the principals of combustion. Operation and testing of low water cutoff. Ability to do simple math. Knowledge of first duties on taking over a shift; including State operators logbook. Knowledge of opacity restrictions and smoke density devices required by 310 CMR 7.00. Understanding of lockout / tag out procedures. Understanding of MSDS. Confined space entry. Knowledge of ASME Code Section VII. Knowledge of what the license permits them do. This information is contained in Chapter 146 of the General Laws and in 522 CMR 2.00.

Understanding ASME Section 7

Questions concerning the plant in which the applicant is presently employed or where they have been employed in the past may be asked during the oral portion of the examination.

FIRST CLASS FIREMAN

All of that pertaining to the foregoing grade. A knowledge of low-pressure steam and vacuum heating systems, feedwater heaters including deaerators and single feedwater control level systems, as well as feedwater treatment and testing. Boiler water sampling, testing and treatment as well as control of steam contamination. Operation & knowledge of small non-condensing turbines. Proper procedure for replacing packing on valves and pumps. Knowledge of the effects of foaming, priming, scale, oil, etc. on the operation of boilers. Laying up of boilers, both wet and dry. Lubricants and lubrication methods for various types of lubricators and their uses on various boiler auxiliaries. Knowledge of the various types of safety valves and relief valves. Safe operating procedures for boilers and auxiliaries covering startup, normal operation, emergency conditions and shutdown. Knowledge of automatic boiler operating controls including safety devices required by 522 CMR 16.00. Knowledge of combustion and combustion by-products. A knowledge of fuel and their proper storage. Types and testing of steam traps.

Knowledge of licensing and inspection laws in Massachusetts including Section 46. Boiler horsepower determination using Chapter 146. Knowledge of steam tables. Knowledge of CMR's 522. Knowledge of CMR's 310. Operation & regeneration of Water softeners, knowledge of steam reducing valves and flue gas analysis equipment. Operation of reciprocating pumps.

Operation & maintenance of centrifugal pumps. Knowledge of what the license permits them do. This information is contained in Chapter 146 of the General Laws and in 522 CMR 2.00

Questions concerning the plant in which the applicant is presently employed or where they have been employed in the past may be asked during the oral portion of the exam.

SECOND CLASS ENGINEER

All of that pertaining to the foregoing grades. A complete knowledge of the construction of all types of boilers and accessories, also the rules formulated by the Board of Boiler Rules, as well as Section I, IV and VII of the ASME Code. Ability to calculate safe working pressure of any boiler using open codebook. Types, purpose and operation of surface condensers, air ejector equipment, and condensate removal equipment. A thorough knowledge of safety valves, their installation and operation. Knowledge of the chemistry of combustion. Knowledge of the local, state and national environmental laws pertaining to power plants. Theory, operation and maintenance of steam turbines, both condensing and noncondensing and their governors.

Knowledge of steam tables and mollier charts. Calculation of boiler efficiencies. Thorough knowledge of feedwater treatment. Ability to parallel AC generators. A knowledge of electricity. Ability to solve algebraic equations. Procedure to hire a boiler repair and other licensed contractors. Hiring asbestos removal contractors. Knowledge of hazardous chemical procedures. Lubricating programs. Training programs. Oil spill procedures, viscometers.

Knowledge of confined space entry procedures. OSHA Training Requirements. Function of ASME, National Board & Board Of Boiler Rules. Operation of demineralizers. Sections of ASME Code, National Board Code and Board of Boilers Rules as they apply to the normal duties and responsibilities of a Second Class Engineer. Ability to size pumps, drivers and control valves.

Questions concerning the plant in which the applicant is presently employed or where they have been employed in the past may be asked during the oral portion of the exam.

FIRST CLASS ENGINEER

A more advanced knowledge of that pertaining to the foregoing grades, including steam and gas turbine repairs. Types, purpose, calculation of the following: power plant cycles, thermodynamic and mechanical losses in steam turbines, etc. Ability to supervise repairs on all plant machinery.

Knowledge of power plant efficiencies. A knowledge of power plant physics and chemistry of combustion. A knowledge of automatic control systems for plant systems. Knowledge of polishing effluents from plant, as well as environmental laws. A thorough knowledge of power plant emissions monitoring and control. A knowledge of power plant environmental regulations including wastewater treatment and solid waste handling. A knowledge of basic knowledge of metallurgy and nondestructive examination. A knowledge of the installation, operation, maintenance and repair of turbines, condensers, boilers, and related auxiliaries including oil purification systems. Basic operation of a generator and plant electric systems. Familiarity with psychometric charts.

Questions concerning the plant in which the applicant is presently employed or where they have been employed in the past may be asked during the oral portion of the exam.

THIRD CLASS ENGINEER

All of that pertaining foregoing grades: Types, purpose, operation of the following: Non-condensing steam turbines, impulse blading, reaction blading, velocity-compounding, pressure compounding, journal bearings, forced feed lubrication, reduction gears, shaft seals, throttle-trip valves, emergency governors, overpressure protection devices. Understanding of causes of vibrations and critical speeds in turbines. Turbine horsepower determination as per Chapter 146. Knowledge of direct acting centrifugal and electronic type speed governors. A knowledge of water treatment. The effect of scale, sludge and other contaminants in boilers. An understanding of water side and fire side corrosion and its prevention. A thorough knowledge of positive and non-positive displacement pumps. A knowledge of heating systems using outside air admission. Methods of removing scale and oil from boilers. Knowledge of boiler safety valve code requirements; including capacity determination, permissible mountings, set pressures, stamping, etc. Ability to order a safety valve and checking safety valve capacity three ways. A knowledge of gagging a safety valve. A knowledge of power plant repairs, including the procedure for making welded and mechanical repairs in accordance with state laws. A thorough knowledge of boilers, boiler control systems both combustion and feedwater. Understanding of code jurisdictional limits for piping drum type boilers as required by ASME Code, Section I PG-58. Typical fuel oil and gas piping arrangements. Knowledge of two and three element feedwater level control systems. Knowledge of bearings used in turbines. Knowledge of indicators, recording devices, and associated instrumentation for monitoring and controlling combustion process. Knowledge of safety controls to prevent unsafe boiler conditions. Knowledge of flue gas analysis and boiler efficiency. Skill in math and simple algebra. Knowledge of surface and air-cooled condensers. Basic methods of superheat temperature control. Safety rules for entering boilers for inspection. Basic steam and water cycle for a condensing turbo generator. Procedure to hire a boiler repair and other licensed contractors. Understanding of ASME Code Section I & National Board Code as it applies to the normal duties and responsibilities of a Third Class Engineer. Complete understanding of "Responsibilities of being a Chief Engineer." A knowledge of Gen.. Laws Chapter 146, knowledge of CMR's 522 & 310, knowledge of B31.1 piping code, knowledge of Gas Turbines. Knowledge of Piping and Instrumentation Drawings (P&ID's)

Questions concerning the plant in which the applicant is presently employed or where they have been employed in the past may be asked during the oral portion of the exam.